16172

3 Hours / 80 Marks   Seat No. ☐☐☐☐☐☐☐☐

Instructions :   (1)   All Questions are *compulsory.*

(2)   Answer each next main Question on a new page.

(3)   Illustrate your answers with neat sketches wherever necessary.

(4)   Figures to the right indicate full marks.

Marks

1.   **Solve any EIGHT of the following :**   **16**

(a)   Define Bio-chemistry. State the importance in pharmacy.

(b)   Give functions of mitochondria and endoplasmic reticulum.

(c)   Give the structure of optically inactive amino acid and any one aromatic amino acid.

(d)   What is non – reducing sugar ? Give suitable examples.

(e)   Give the structure of D-fructose and D-Mannose.

(f)   Differentiate between peptide linkage and glycosidic linkage.

(g)   Define essential and non-essential fatty acid with example.

(h)   Give symptoms due to deficiency of ascorbic acid.

(i)   What are co-enzymes and name coenzymes derived from   (i) Vitamin B_1 (ii) Vitamin B_3 ?

(j)   Define and classify vitamin.

(k)   Give biological functions of calcium.

(l)   Write deficiency disease of Iron and Potassium.

2. **Solve any FOUR of the following :** 12

    (a) Define and classify amino acid with examples.

    (b) Define protein. Mention biological functions of proteins.

    (c) Define and classify carbohydrates with examples.

    (d) Explain Rhodopsin cycle for vision.

    (e) Explain water balance of normal individual.

    (f) Discuss diagnostic and therapeutic applications of enzymes.

3. **Solve any FOUR of the following :** 12

    (a) Explain α-helix structure of protein.

    (b) Explain Acid-base behaviour of amino acids.

    (c) Explain mutarotation with example.

    (d) Give the structure, biochemical role and deficiency disease of Nicotinic acid.

    (e) Explain the mucosal block theory of iron absorption.

    (f) What is physiological and pathological urine ? Mention abnormal constituents of urine and their significance in disease.

4. **Solve any FOUR of the following :** 12

    (a) Explain following reactions :

        (i) Biuret test

        (ii) Ninhydrine test

        (iii) Xanthoproteic test

(b) Explain the osazone reaction of carbohydrate with its significance.

(c) Explain the following term with their significance,

(i) Acid value

(ii) Iodine value

(d) Name the vitamin deficiency of which leads to

(i) Beri beri

(ii) Egg white injury

(iii) Rickets

(iv) Pernicious anaemia

(v) Scurvy

(vi) Blood clotting disorder

(e) Define enzyme and classify enzymes with examples.

(f) What are abnormalities of red cells ? Explain.

5. **Solve any FOUR of the following :** 12

(a) Explain the diseases caused by dietary deficiency of proteins.

(b) Describe glycogen storage disease and Diabetes Mellitus.

(c) Explain the role of lipids in biological membrane.

(d) What are electrolytes ? Explain functions of electrolytes in our body.

(e) What is enzyme inhibition ? Explain competitive and non competitive inhibition with examples.

(f) What are lymphocytes ? Explain role of lymphocytes in health and diseases.

6. **Solve any FOUR of the following :** 16

   (a) What is E-M pathway ? Give steps involved in E-M pathway.

   (b) Discuss TCA cycle along with its energetics.

   (c) Explain the urea cycle.

   (d) Discuss Beta-oxidation by taking example of palmitic acid.

   (e) Define :

       (i) Iso-enzyme

       (ii) Multi enzyme

       (iii) Allosteric enzymes

       (iv) Metallo enzymes

   (f) What are lipids ? Classify lipids with examples. Give one structure of unsaturated fatty acid.

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